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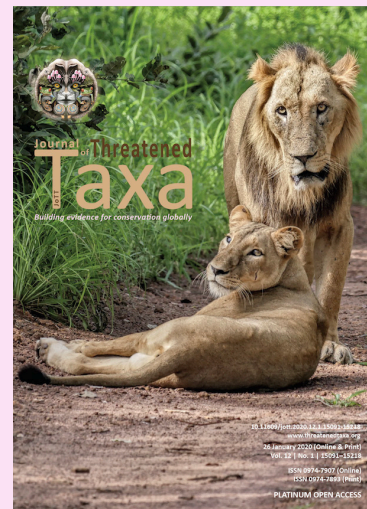
NOTE

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Chathura Udayanga Herath, Pavan Bopitiya Gamage, Iroshan Rupasinghe &
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A first record of oviposition of Common Onyx *Horaga onyx* Moore, 1857 (Insecta: Lepidoptera: Lycaenidae) in Sri Lanka and its importance in conserving a highly threatened butterfly

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Horaga onyx (Moore 1857) commonly known as the Common Onyx or Blue Onyx is a Lycaenid butterfly found in Sri Lanka. The Sri Lankan population was described as *Horaga onyx cingalensis* by Moore (1884); it is also found in India. Adult butterflies are very seldom seen, and have been historically recorded very infrequently and in very low numbers. The biology of this butterfly in Sri Lanka is unknown and was placed under the Data Deficient category in IUCN Red List in Sri Lanka in 2007 (IUCN & MOENR 2007). In 2012 it was declared critically endangered in the National Red List (MOE 2012).

H. onyx was reported to occur mainly in the hills, up to an elevation of about 760m (d’Abrera 1998). It has been historically recorded from Kandy, Rathnapura, Deniyaya, Kottawa and a few other locations in the Galle District (Ormiston 1924; Woodhouse 1949) (Figure 1). Recently it was recorded from the Sinharaja Forest Reserve at Kudawa and Deniyaya (van der Poorten & van der Poorten 2018) and at Palkelele (Moditha Kodikara Arachchi pers. obs. 27.vii.2018) (Figure 1). The larval

food plant of *H. onyx* in India has been recorded as *Coriaria nepalensis* (Coriariaceae) (MacKinnon & de Nicéville 1898; Chandrasekharan 2019). *Glochidion rubrum* (Phyllanthaceae) has been reported as a larval food plant in Taiwan and *Litsea rotundiflora* (Lauraceae) in Hong Kong (Igarashi & Fukuda 2000). Kasambe (2016) reported oviposition on *Crassocephalum crepioides* (Asteraceae) in southern Western Ghats of India and suggested it being a potential larval food plant. No information on the early stages or oviposition behavior of *H. onyx* has been previously recorded in Sri Lanka, and the observations from this location are the first.

Observations of the oviposition behavior was recorded using two binoculars; a Bushnell 8x42 and Swarovski 10x56. All images were taken with a Canon 7D Mark II DSLR camera with 100–400 mm lens.

Observations were carried out at Enasalwatta, situated about 7km (aerial distance) northeast of Deniyaya Town, in southern Sri Lanka. It is a part of the Sinharaja Forest Reserve with elevation ranging 800–1,200 m. Lower

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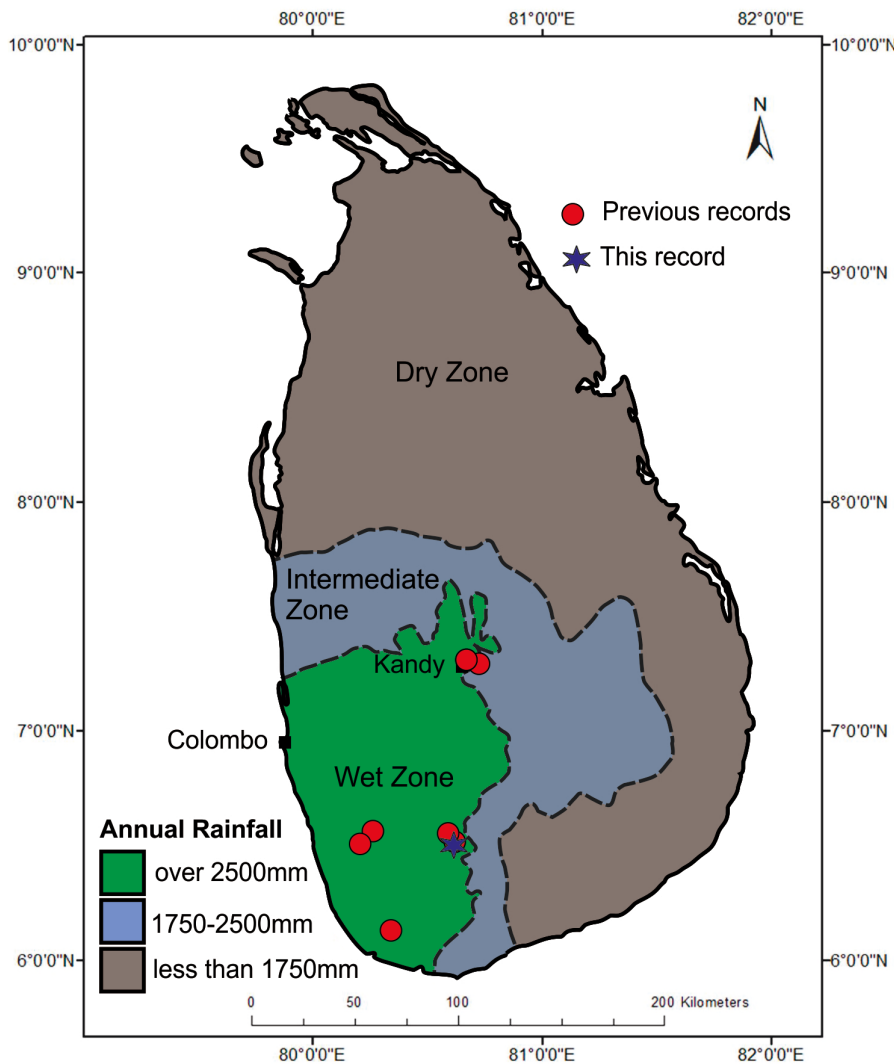


Figure 1. Records of *Horaga onyx* in Sri Lanka (modified after van der Poorten & van der Poorten (2018)).

montane evergreen forests are observed in this area (Image 4) with layering of the forest vegetation typical to that of primary rainforests (Gunatilleke et al. 2008). Average annual rainfall of this area is 5,000–6,000 mm, with most precipitation during the southwest monsoon between May and September, followed by the inter-monsoon rains and the northeast monsoon (Department of Meteorology, Sri Lanka 2019)

On 14 July 2019, a female *H. onyx* was observed flying around a *Macaranga indica* (Euphorbiaceae) tree in Sinharaja Forest Reserve at Enasalwatta, Deniyaya, Sri Lanka (6.391°N & 80.604°E). The elevation of the site is 1,024m. Relative humidity at the time of observation was around 65% with varying cloud cover of 20–70 %. The observations recorded here were made adjacent to a stream near a roadside tree that was about six meters in height. *M. indica* Wight, 1852, is native to

Sri Lanka, occurring from wet lowlands to montane forests (Dassanayake 1997) and can be seen regularly on roadsides and forest edges in this area. It was identified with its characteristic leaves, which are large, with slender petioles; 6–18 cm, blades ovate, papery, base broadly rounded and peltate, apex acute, numerous palmate secondary nerves arising from petiole insertion, few conspicuous elongate glands on main nerves beside petiole insertion of which two were most prominent and was used to separate this species from *Macaranga peltata* (Euphorbiaceae) which is the only confusion species and lacks these glands. The tree was at the flowering stage with its flower panicles formed along the branches.

The butterfly was identified by its characteristic white band on the underwing which was broad over both fore- and hind-wings (Image 1), distinguishing it from



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Image 1. *Horaga onyx* female perched on *Macaranga indica* leaf.

the similar Brown Onyx (*H. albimacula*). Less extensive and less intense blue on upper wings implied that it was a female (Woodhouse 1949; d'Abrera 1998; van der Poorten & van der Poorten 2018). The butterfly flew around the periphery of the tree, seldom moving away. It flew over the entire canopy crown which ranged from three to six meters high from ground level, but favored the sun-lit side. It perched on leaves to sun bathe several times but seldom remained for more than about 40 seconds on a leaf, before flying off again. In one instance it flew down and perched briefly on a bush near the ground.

From time to time the female flew from its perch on to the peduncle of an inflorescence with developing flower buds. On one occasion, it perched near the base of the inflorescence, moved to the developing floral buds, curved its abdomen and placed a single egg on it (Image 2). In some instances, although it flew on to a branchlet or a flower panicle, no ovipositing was observed. Just after ovipositing, the butterfly was seen flying over the canopy and was not seen again on that day. These observations were made from 12.25h to 12.40h during which time the sky was clear with intermittent clouds; a slight drizzle occurred in the morning.

The next day, on 15 July 2019, we observed a female flying around the same tree between 09.20h and 09.30h but were unable to confirm whether or not it was the



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Image 2. *Horaga onyx cingalensis* egg on the base of a developing inflorescence of *Macaranga indica*.

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Image 3. *Horaga onyx cingalensis* egg on a branchlet of *Macaranga indica*.

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Image 4. Lower montane forest habitat in the area.

same individual seen the day before. During the short period observed, it oviposited once. This time the egg was laid directly on a branchlet, close to a flower panicle (Image 3). In other respects its behavior was similar to that seen the day earlier. It appears, judging from its oviposition behavior and the location where eggs were

laid, that the larvae feed on flowers and flower buds.

The current information obtained from this site is crucial for gathering further information on the biology of this species and paves the way to understand its restricted distribution and scarcity. This is particularly relevant because of the dearth of information on the biology of the species, which has been a drawback to the development of a conservation strategy to protect this highly threatened subspecies. Further, *M. indica* must be confirmed as the larval host plant of this species by rearing larvae to successful emergence of adults. Until such time, the suggested larval food plant here must be considered tentative, since it is well known that some species sometimes oviposit on plants that are not used as larval food plants.

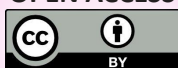
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